# A. F. EELLS & S. C. LOUD.

## SHIP'S PUMP.

No. 188,879. Patented March 27, 1877.

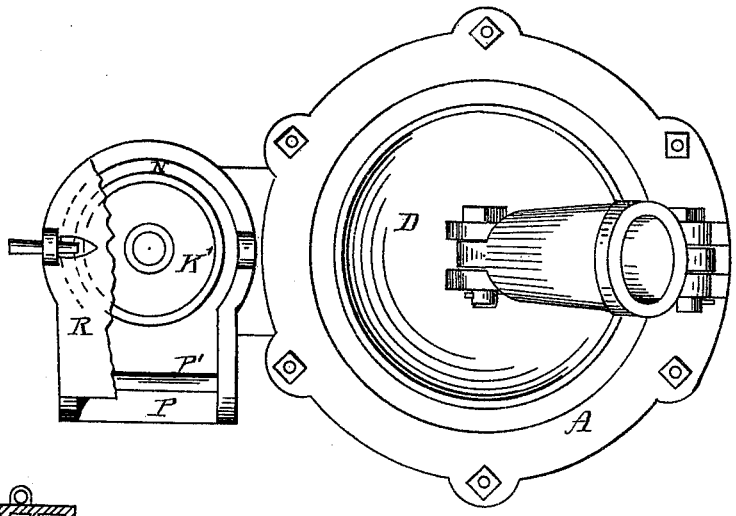


Fig. 1.

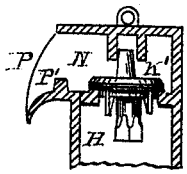


Fig. 3.

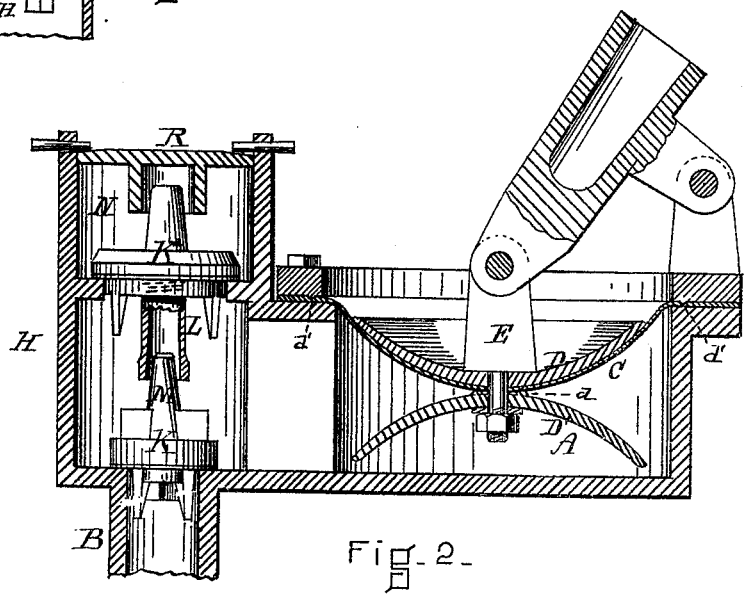


Fig. 2.

WITNESSES
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ALBERT F. EELLS AND SAMUEL C. LOUD, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN SHIPS' PUMPS.

Specification forming part of Letters Patent No. **188,879**, dated March 27, 1877; application filed March 3, 1877.

*To all whom it may concern:*

Be it known that we, ALBERT F. EELLS and SAMUEL C. LOUD, both of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Ships' Pumps, of which the following is a specification:

Our invention relates to the peculiar construction of ships' pumps; and consists in the arrangement of a diaphragm-chamber placed at the side of the uptake, and of valves in the upper part of the uptake, which, acting in connection with the said diaphragm-chamber, constitute a pump which has a straight uptake, having no obstruction in it, except two puppet-valves, which are placed at the extreme upper end, and are so accessible as to be removed at any time by the hand alone, thus leaving the uptake free to be cleansed, or used as a sounding-well.

Figure 1 is a plan of our invention. Fig. 2 is a section of the same; Fig. 3, a cross-section of the head of uptake.

The uptake-pipe B terminates in a head, H, somewhat enlarged to receive the two puppet-valves K and K′, which may be made in any desired style and shape. The stem M of the lower valve, K, extends upward into a projecting tube, L, attached to the upper valve, K′. This device furnishes a simple arrangement for steadying and directing the valves as they rise and fall. Above the upper valve, K′, we have a discharge-chamber, N. This chamber is provided with an outlet-pipe, P, and a little bridge, P′, which causes the overflowing water to always remain a little above the valve K′. In other words, the upper valve, K′, is kept submerged or water-packed. R is a removable cap. A is a diaphragm-chamber, connected, as shown, to the space between the valves K and K′, Fig. 2. C represents a diaphragm made of any suitable material. On either side of this diaphragm we place a concave disk, D and D′. E is a stem, which serves to connect the diaphragm and the disks D D′. Through this stem E motion is communicated to the diaphragm. In other words, the pump is worked. These disks D and D′ are placed with their convex sides together, and serve to form supports for the flexible diaphragm C. They also prevent wrinkling, and allow of greater pressure to be applied without danger of rupture. Upon one of the disks D or D′ we form a bead, *d*, Fig. 2, which serves to assist in fastening the flexible diaphragm C. The bead *d*′ serves to hold the outer edge of the diaphragm C more firmly.

We claim—

The combination of the diaphragm-pump D C D′ A with the valve-chamber H in the uptake, said chamber being provided with valves K K′, all operating together, substantially as described.

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